

CREATING A COMMITTEE TO STUDY AND EVALUATE PUBLIC AND PRIVATE EXPERIMENTS IN WEATHER MODIFICATION

JUNE 30, 1952.—Committed to the Committee of the Whole House on the State
of the Union and ordered to be printed

Mr. WILLIAMS of Mississippi, from the Committee on Interstate
and Foreign Commerce, submitted the following

REPORT

[To accompany S. 2225]

The Committee on Interstate and Foreign Commerce, to whom was referred the bill (S. 2225) to create a committee to study and evaluate public and private experiments in weather modification, having considered the same, report favorably thereon without amendment and recommend that the bill do pass.

GENERAL STATEMENT

HEARINGS

Extensive hearings in the Senate on similar bills were held during the first session of the present Congress by subcommittees of the following committees: The Committee on Interior and Insular Affairs, the Committee on Agriculture and Forestry, and the Senate Interstate Commerce Committee. Information developed at those hearings established the importance of and the need for legislation dealing with "weather modification." In the light of this information, a new bill was drafted and approved by those subcommittees, and subsequently introduced during the present session.

The Senate Interstate Commerce Committee has reviewed the hearings and has amended the bill in several ways that do not change its substance or purpose. All of the interested departments and agencies of the Government have reported favorably on the bill, and all changes in detail proposed by these departments and agencies have been incorporated into the bill, with two exceptions: The Department of Defense proposed that a permanent commission on weather control, rather than a temporary committee, should be set

up and that weather-control activities on the part of private individuals should be prohibited except under license or permit. The Senate Interstate Commerce Committee and your committee feels that our present state of knowledge concerning weather modification will not justify these steps, that regulations and restrictions should follow only after the need for them has been clearly demonstrated, and that legislation tending to create a Federal monopoly of weather-control activities might limit and discourage experiments by private individuals and companies, the source of major discoveries in the field to date.

NEED FOR LEGISLATION

Nonscientific and pseudoscientific rain makers have been practicing their art for many years with many fantastic and far-fetched devices and theories. The general public has, justifiably, regarded these efforts with skepticism.

However, in recent years, particularly since 1946, some genuinely scientific experiments in weather modification have been made with highly suggestive results; and, though these experiments have been conducted by responsible persons with established scientific reputations, the results have been the subject of controversial interpretations.

Because of doubts and controversy surrounding these experiments, the Senate committee thought it advisable to make several clarifying statements on the subject, based primarily on information developed during the hearings.

1. It appears certain that, given the proper conditions, rainfall can be artificially induced. Rain cannot be produced from non-moisture-bearing skies, but, if the proper weather quantities of moisture and temperature are available, nucleating or seeding agents can be introduced into clouds to cause precipitation.

During the hearings Dr. Vannevar Bush, president of the Carnegie Institution, told the subcommittees:

I have become convinced that it is possible under proper circumstances to make rain. * * * we are on the threshold of an exceedingly important matter, for man has begun for the first time to affect the weather in which he lives, and no man can tell where such a move will finally end.

Dr. Vincent J. Schaefer, of the General Electric Research Laboratory, testified that—

The experimental studies using aircraft for seeding stratus and cumulus clouds have *always* shown positive reactions whenever supercooled clouds were present. [Italics supplied.]

Laboratory and outdoor experiments have repeatedly demonstrated the effectiveness of nucleating agents.

Two important questions, however, remain unanswered:

How often do the proper conditions exist so that favorable seeding opportunities present themselves? and, Will artificial nucleating agents make or increase rainfall in economically important quantities?

2. Rain making is a big business. In 1951 one rain-making contractor alone had under contract over 300,000,000 acres in the United States, or about 12 times as many acres as those under irrigation in the Nation. Farmers and ranchers paid millions of dollars for the services of this organization, which contemplates extending its operations to Central America, South America, South Africa, and Europe. Another contractor has carried on operations in Cuba, Ecuador, and

Canada, as well as in this country. At least four other contractors are carrying on large-scale operations, and in February of this year it was reported that at least 60 projects were under way in the United States. Associations of farmers are sponsoring many of these projects but private corporations, including public-utility companies, sugar and fruit-growing companies, and an aluminum company, are sponsoring a substantial number of them also.

3. If practical, weather control promises tremendous benefits for a small investment. Research work in the field involves no test plants or production facilities and very little expensive equipment. Further, actual rain-making operations cost little in material and equipment. The seeding agents, carbon dioxide or silver iodide, are inexpensive, yet when used in small quantities they apparently produce weather phenomena of the highest magnitude. If these phenomena cause only a small increase in precipitation, this small increase can be economically important. An inch of extra rain, converted into runoff and concentrated into a reservoir, can produce electric power worth hundreds of thousands of dollars. A small fraction of an inch of extra rain, falling on crops during the period of germination, can greatly increase crop yields. But artificial nucleation may have useful potentialities in addition to that of stimulating rainfall. It may have possibilities for increasing snowpack in mountainous areas, for holding back and "softening" rainstorms, thereby reducing soil erosion, for inhibiting hail, for breaking up hurricanes, and for precipitating out and thereby cutting holes in clouds so that aircraft can operate.

4. Weather-control activities may have far-reaching and catastrophic effects. Dr. C. G. Suits, vice president and director of research of the General Electric Co., testified before the Senate Interstate Commerce Committee that rain makers set powerful forces in motion, saying that a single pound of dry ice, as it triggered off a heavy rainstorm, could cause an energy release "equivalent in magnitude to the energy of several atomic bombs." The famous scientist and Nobel-prize winner, Dr. Irving Langmuir, has presented data to support a claim that rain makers, by releasing silver iodide, could cause drastic weather effects 2,000 or 3,000 miles from the scene of seeding operations. His hypotheses have been considered in connection with the Kansas-Missouri floods of 1951, the unusually heavy snow cover over large areas of the Missouri River Basin which melted off rapidly causing the 1952 floods, and droughts and excessive rainfall in other areas of the Nation, especially during the past 2 years. Many other scientists consider it unlikely or impossible that cloud seeding should have such long-range effects. Nevertheless, your committee feels that studies on this aspect of the subject should be continued so that, if necessary, the public can be protected against weather catastrophes brought about unnaturally.

ADVISORY COMMITTEE ON WEATHER CONTROL

The object of the present bill is "to find out who is doing what—under what conditions, and with what results."

Farmers and ranchers have been investing millions of dollars in weather-control experiments. The scientific value to the public of these private experiments will be largely lost if an independent and impartial evaluating agency cannot be set up in the near future.

In practically all cases the farmers lack the data and the scientific knowledge that would enable them to determine whether they obtain their money's worth or are simply paying for rain that would fall naturally. They need the protection of independent evaluation of experiments so they can decide whether they should continue to pay large sums of money to rainmaking contractors. This is not to suggest that the Federal Government should evaluate each individual project. It should, however, attempt to establish uniform methods of evaluation, and should collect evaluation reports from a substantial number of projects, so that these can be averaged as the basis for general pronouncements on the effectiveness of weather-control methods.

Farmers and ranchers may also need protection against fraudulent claims and promises, which they may be especially disposed to accept in times of drought, and against weather-control operations that are unskilled or loosely supervised, therefore ineffective and possibly damaging. Furthermore, the general public and certain farmers, requiring less rather than more rain at a given time, may need protection against operations sponsored by other persons that may affect them detrimentally. This is not to propose that the Federal Government should, at this time, arbitrate between different groups affected or seemingly affected by weather-control activities or should regulate and restrict practitioners of the rainmaking art. Further information must be secured before the Federal Government can determine the extent of regulation necessary and desirable, and this information should be secured as soon as possible.

For these reasons your committee believes an Advisory Committee on Weather Control should be established, as provided for in the present bill. This Advisory Committee should collect and organize information about weather-control experiments over a period of several years, should study, evaluate, and make pronouncements on these experiments; and should report to the Congress from time to time on further legislation which may be necessary and desirable to protect and further the interests of the public.

In addition, further weather-control experimentation and research should be encouraged. The bill authorizes the Secretaries of Defense, Interior, Agriculture, and Commerce to conduct or contract for such experimentation and research, but specifies that the Advisory Committee shall coordinate this work so as to avoid duplication of effort.

It was after much consideration that a temporary and independent Advisory Committee was settled on as the best device for studying and evaluating weather-control activities. It was felt that, weather control being an all-embracing matter, the interests of business, science, and agriculture should be represented as well as the interests of the Government. It was felt that any certain department of the Government might have an interest in developing a particular aspect of weather control to the neglect of other aspects. It was felt, further, that the recommendations on future research and legislation of an independent, nongovernmental group might carry more weight before the Congress than those of governmental employees who might be accused, perhaps unfairly, of trying to perpetuate their jobs or enlarge their departments or agencies. Hence the Advisory Committee was decided upon, with, however, the experimental work being done under auspices of existing departments of the Government.

PROVISIONS OF THE BILL

The bill provides for a temporary Advisory Committee on Weather Control comprised of nine members, including five appointed by the President by and with the advice and consent of the Senate, from among persons in private life of outstanding ability in the fields of science, agriculture, and business, and the Secretaries of Defense, Interior, Agriculture, and Commerce or their designees. The members from private life shall each receive \$50 per diem when engaged in the performance of their duties and shall be reimbursed for travel, subsistence, and other necessary expenses. The Advisory Committee shall have power to appoint and fix the compensation of such officers and employees as may be necessary to carry out its functions.

The Advisory Committee shall report its findings and recommendations to Congress from time to time, making its final report no later than June 30, 1955. Thirty days after submission of this final report, it shall cease to exist.

The Advisory Committee shall have authority to secure information and statistics from Federal agencies; to hold hearings and take testimony; to require the keeping of and, when necessary, the production of records on the part of persons undertaking weather-control experiments. It shall report to the Congress at the earliest possible moment on the advisability of the Government regulating by means of licenses or otherwise the activities of persons attempting to modify the weather.

The bill provides authority for the Secretaries of Defense, Interior, Agriculture, and Commerce to conduct or contract for research and experiments, with the Advisory Committee coordinating these functions so as to avoid duplication of effort. Under terms of the bill, with the approval of the Committee and the Secretary concerned, any contract with a Government agency for research or experimentation may provide that the Government may indemnify the contractor for losses arising out of the performance of the contract in an amount deemed just and reasonable by the Committee and the Secretary concerned, to be paid out of funds set aside for payment of the contract, or out of unobligated research funds or out of funds appropriated for that purpose by the Congress.

The bill authorizes appropriations in the amount necessary to carry out the purposes of the act.

For the information of the House your committee appends reports made to the Senate Interstate Commerce Committee from Department of Army, Department of Interior, Department of Commerce, Department of Agriculture, Department of State, and the Comptroller General.

APPENDIX

DEPARTMENT OF THE ARMY,
Washington 25, D. C., March 13, 1952.

Hon. EDWIN C. JOHNSON,
Chairman, Committee on Interstate and Foreign Commerce,
United States Senate.

DEAR SENATOR JOHNSON: Reference is made to your request to the Secretary of Defense for the views of the Department of Defense with respect to S. 2225, a bill to create a committee to study and evaluate public and private experiments

in weather modification. The Secretary of Defense has delegated to the Department of the Army the responsibility for expressing the views of the Department of Defense thereon.

The Department of the Army on behalf of the Department of Defense agrees with the principle of the bill, which is to study and evaluate experiments in weather control; but, as set forth below, is of the opinion that S. 2225 without modification is inadequate to serve the present need.

S. 2225 would establish for 2 years an Advisory Committee on Weather Control to be comprised of the Secretaries of Defense, Agriculture, Commerce and Interior, or their designees, and five members from private life, to "make a complete study and evaluation of public and private experiments in weather control for the purpose of determining the extent to which the United States should experiment with, engage in, or regulate activities designed to control weather conditions." Section 9 (a) of the bill directs the Secretaries to conduct or contract for research and experiments to perfect methods of controlling weather for beneficial purposes and further directs the committee to assist the Secretaries in coordinating their functions under the section. Section 9 (b) provides for indemnification for damages caused by such research and experimentation.

In my letter to you under date of May 28, 1951, relating to S. 5, S. 222, and S. 798, I stated in part: "Legislation which would protect the validity of experiments by providing for coordination of effort and, at the same time, not hamper vigorous prosecution of valid research is desirable. * * * Emphasis at this time should be on research with only so much control as may be necessary to assure coordinated effort and to prevent indiscriminate or irresponsible attempts at cloud modification."

The present bill, S. 2225, falls short of providing the necessary controls. Coordination is required not merely of the efforts of the four executive departments mentioned in the bill, but also of all State and local agencies and other individuals and organizations engaging in weather modification and control. Indiscriminate and irresponsible activities which might have deleterious effects upon legitimate experimentation and operations can be prevented by licensing and regulation, neither of which is provided for adequately in S. 2225. Section 8 (d) (1) authorizes regulations to be issued by the Committee for the purposes of obtaining information, requiring reports, keeping of records, and inspection of records and premises "of any person as may be necessary or appropriate to carry out the provisions of this Act." This provision does not authorize the Committee, by regulation, to say who may engage in weather modification and when and where such activities may be pursued. This is a serious deficiency in the view of this Department.

Section 9 (b) of the present bill contains the same provisions relating to Government liability for damage caused by its contractors engaged in weather modification as are contained in section 10 of S. 222. On October 11, 1951, Mr. Stennis, on behalf of the Committee on Armed Services, submitted Senate Report No. 936, recommending passage of H. R. 1180, a bill to facilitate the performance of research and development work by and on behalf of the Departments of the Army, the Navy, and the Air Force, and for other purposes. H. R. 1180 is a companion bill to S. 323 mentioned in my letter of May 28, 1951. It is thought desirable that the indemnity provision in the present bill be similar to that of the indemnity provision (sec. 5) of H. R. 1180. Section 9 (b) of S. 2225 should, therefore, be replaced by language similar to that contained in section 5 of H. R. 1180.

Section 10 (a) of the present bill provides that the Committee shall submit a final report not later than 2 years after the enactment of the bill. The mission of the Committee as set forth in sections 2 and 8 (a) and (b) and as contemplated in these comments, would require a considerable amount of work which, in our view, could not be accomplished adequately within 2 years. An organization such as we envision would be required, among its duties, to make a thorough statistical analysis of cloud-seeding operations. Such analysis is a complex and time-consuming process. The value of the organization as contemplated will depend upon the thoroughness of its study of cloud-seeding operations throughout the country and it is believed that the proposed organization should be given at least 2 years for the submission of an interim report and such additional time as the Congress decides for filing additional reports with recommendations for further legislation. It is not believed to be appropriate that a time limit be placed on the existence of the organization.

In section 9 (a) of the present bill, it is suggested that the word "shall" be deleted and the word "may" be inserted in both lines 3 and 4. It does not appear appropriate that all the departments mentioned should be required to conduct research on this subject.

COMMITTEE TO STUDY EXPERIMENTS IN WEATHER MODIFICATION 7

The Department of the Army, on behalf of the Department of Defense, has no objection to the enactment of S. 2225 with the above modifications.

The fiscal effect of S. 2225 is unknown to the Department of Defense.

This report has been coordinated among the departments and boards of the Department of Defense in accordance with procedures prescribed by the Secretary of Defense.

Due to your request of March 7, 1952, for an expeditious report on S. 2225, this report has not been submitted to the Bureau of the Budget for advice as to its relationship to the program of the President.

Sincerely yours,

FRANK PACE, Jr.,
Secretary of the Army.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington 25, D. C., March 24, 1952.

HON. EDWIN C. JOHNSON,
*Chairman, Committee on Interstate and Foreign Commerce,
United States Senate, Washington 25, D. C.*

MY DEAR SENATOR JOHNSON: You have requested a statement of the views of this Department on S. 2225, a bill to create a committee to study and evaluate public and private experiments in weather modification.

Enactment of this bill would accomplish two major purposes: (1) It would create an Advisory Committee on Weather Control, consisting of nine members (including the Secretaries of Agriculture, Commerce, Defense, and the Interior or their designees), to "make a complete study and evaluation of public and private experiments in weather control for the purpose of determining the extent to which the United States should experiment with, engage in, or regulate activities designed to control weather conditions." (2) It would authorize each of the four Secretaries just named to "conduct, or contract for, such research and experiments, and * * * [to] take such further action, as may be necessary to perfect at the earliest possible date methods of controlling weather for beneficial purposes." The bill contains provisions which will enable these two purposes to be carried out. One of the most important of these ancillary provisions is that which will permit the Advisory Committee on Weather Control to require persons engaged in weather-control operations to keep records and to make reports on their work.

Although S. 2225 differs in many details from the artificial precipitation provisions of S. 5, upon which this Department reported favorably to the Committee on Interior and Insular Affairs on March 14, 1951, I am glad to note that it will enable this Department to carry on virtually the same program of research and investigation with respect to artificial precipitation that it would have carried on under S. 5. I am also glad to note that S. 2225 will permit thorough consideration to be given to the need for Federal regulation of weather-control activities and to the types of regulation best adapted to the need.

The Bureau of the Budget has advised that there is no objection to the submission of this report to your committee. The Bureau of the Budget has further advised that it believes S. 2225 contains a number of objectionable provisions and does not, in general, offer a satisfactory solution to the problem.

Sincerely yours,

OSCAR L. CHAPMAN,
Secretary of the Interior.

DEPARTMENT OF COMMERCE
Washington 25, February 13, 1952.

HON. EDWIN C. JOHNSON,
*Chairman, Committee on Interstate and Foreign Commerce,
United States Senate, Washington, D. C.*

DEAR MR. CHAIRMAN: This letter is in further reply to your request of October 10, 1951, for the views of this Department concerning S. 2225, a bill to create a committee to study and evaluate public and private experiments in weather modification.

The bill would establish an Advisory Committee on Weather Control to investigate and evaluate public and private experiments in weather control, and to coordinate the activities of Federal agencies in the field of weather control.

8 COMMITTEE TO STUDY EXPERIMENTS IN WEATHER MODIFICATION

This Department has commented on earlier bills for a somewhat similar purpose (S. 5, S. 222, and S. 798 of the 82d Cong.). These earlier bills were directed primarily at regulation of weather-control activities.

The present bill, however, is designed primarily to coordinate the operations of the various Federal agencies active in this field, to advise such agencies and other parties interested in weather control, and to make information on the subject generally available.

We suggest, however, that the appointment by the President of an interdepartmental committee for this purpose would be a more satisfactory method of providing the leadership and close cooperation among Federal agencies which is necessary if research and experimentation to the greatest extent possible are to be carried out without costly duplication of activities. We have suggested the possible desirability of such an interdepartmental committee to the Executive Office of the President.

If, however, your committee believes that enactment of legislation would be a more appropriate method of achieving the desired results, we would recommend the enactment of S. 2225, which we believe to be, in the main, a satisfactory bill for the purpose.

There are certain perfecting amendments to S. 2225 which this Department believes to be desirable if that bill is to be enacted. These amendments, and our reasons for proposing them, are set forth in the attached memorandum prepared by my Solicitor.

We have been advised by the Bureau of the Budget that there would be no objection to the submission of this report but, in view of the fact that the Bureau of the Budget had not received the reports of several of the interested agencies, the Bureau of the Budget is unable to advise us at this time as to the relationship of the proposed legislation to the program of the President.

Sincerely yours,

THOMAS C. DAVIS,
Acting Secretary of Commerce.

OFFICE OF THE SOLICITOR,
February 12, 1952.

To: Secretary of Commerce.
From: Solicitor.
Subject: S. 2225.

I have examined S. 2225, and have requested the views of the Weather Bureau and other interested bureaus of the Department with respect to this bill. The bill would be satisfactory to those bureaus and to this office if the amendments set forth below were adopted.

On page 2, delete lines 1 and 2 and insert instead "modification and control of weather, if effective on a large scale, would cause profound changes in our present way of life and would result * * *".

This amendment would, in our opinion, reflect more accurately the present status of weather control and modification than would the present language.

Page 2, line 19, "Through" is evidently a misprint for "Thorough".

Page 5, lines 14 and 15, delete the words "or such member".

In our opinion unless this language is deleted, any member of the Advisory Committee on his own volition and without any coordination or control on the part of the Committee, could hold hearings, take testimony, and sit and act at any place whatsoever. The proposed amendment would merely require that the Advisory Committee authorize such action.

Page 6, lines 14 and 15, delete "or other responsible". This amendment would eliminate the possibility of long litigation over the meaning of "other responsible agency" without substantially affecting the substance of the provision, since Federal agencies would appear to be the ones most likely to have such information, and the one from whom such information would be most available.

DEPARTMENT OF AGRICULTURE,
Washington, February 12, 1952.

Hon. E. C. JOHNSON,
*Chairman, Committee on Interstate and Foreign Commerce,
United States Senate.*

DEAR SENATOR JOHNSON: This is in reply to your request for the comments of this Department on S. 2225, a bill to create a committee to study and evaluate public and private experiments in weather modification.

COMMITTEE TO STUDY EXPERIMENTS IN WEATHER MODIFICATION 9

The provisions of this bill appear to meet most of the Department's recommendations made in connection with S. 5, S. 222, and S. 798, bills relating to weather modification on which this Department has previously commented. In our judgment this bill generally would be in the public interest.

Certain changes designed to clarify the language of the bill or to improve operation of the program pursuant to the bill are suggested in the following paragraphs:

Section 9, subsection (a), provides that the Secretaries of Defense, Agriculture, Commerce, and Interior shall conduct research in weather control and that the Advisory Committee on Weather Control created by the bill shall assist them in coordinating such functions. Subsection (b) of section 9 requires the approval of the Committee in connection with certain activities of the Government agencies. Under section 10 of the bill the life of the Committee would be at most 2 years and 30 days, and possibly a shorter period. It seems likely that a longer period than 2 years might be necessary for some phases of needed research due to the newness of the field. Therefore it would be well to modify the wording of section 9 to indicate more clearly that the research authorized is not to be limited to the indefinite period of the Committee's existence.

Section 8 (d) (4) provides that information obtained under this section which the Committee deems confidential or with reference to which a request for confidential treatment is made by the person furnishing information shall not be published or disclosed unless the Committee determines that the withholding thereof is contrary to the purposes of the bill. It is unlikely that the Committee would determine that the withholding of any information would be contrary to the purposes of this bill if it in any way affected the national security, particularly since the statement of purposes and policies shows that the national security is one of the considerations of need for the bill. However, it may be advisable to make this more definite by adding a proviso that the Committee could withhold the publication of information for reasons of national security.

Consideration might be given to the inclusion of an authorization for the appropriation of funds to carry out the provisions of the bill.

This Department recommends enactment of the bill subject to consideration of these possible changes.

The Bureau of the Budget advises that there is no objection to the submission of this report but that, in view of the fact that reports from several of the interested agencies have not yet been received in that Bureau, it cannot advise us at this time regarding the relationship of the proposed legislation to the program of the President.

Sincerely,

C. J. McCORMICK, *Acting Secretary.*

DEPARTMENT OF STATE,
Washington, February 13, 1952.

HON. EDWIN C. JOHNSON,
*Chairman, Committee on Interstate and Foreign Commerce,
United States Senate.*

MY DEAR SENATOR JOHNSON: I refer further to your letter of October 10, 1951, transmitting to the Department of State for comment S. 2225, a bill to create a committee to study and evaluate public and private experiments in weather modification.

There is no record of international incidents or claims involving the United States which have arisen from weather modification and it is recognized that the primary purpose of the bill is to create a study and evaluation committee. However, since weather modification may affect areas extending across national as well as State boundaries, and since it may prove advisable to establish liaison with the countries bordering the United States in connection with the work of the proposed committee, it is suggested that consideration be given to amending the lines beginning with line 21 on page 2 to read: "* * * extending across State boundaries and possibly across national boundaries. The Congress therefore recognizes that experimentation and application of such measures are matters of national and international concern."

It is also suggested that consideration be given to deleting the word "Through" on page 2, line 19, in order to clarify the meaning of that sentence.

The Department has been informed by the Bureau of the Budget that there is no objection to the submission of this report. However, in view of the fact that

10 COMMITTEE TO STUDY EXPERIMENTS IN WEATHER MODIFICATION

the reports of several of the interested agencies have not been received by that office, they cannot advise us at this time as to the relationship of this legislation to the program of the President.

Sincerely yours,

JACK K. McFALL,
Assistant Secretary
(For the Secretary of State).

GENERAL ACCOUNTING OFFICE,
Washington 25, October 23, 1951.

HON. EDWIN C. JOHNSON,
Chairman, Committee on Interstate and Foreign Commerce,
United States Senate.

MY DEAR MR. CHAIRMAN: I have your letter of October 10, 1951, acknowledged by telephone on October 15, enclosing a copy of S. 2225, Eighty-second Congress, entitled "A bill to create a committee to study and evaluate public and private experiments in weather modification," and requesting the comments of this Office thereon.

Several bills with somewhat similar purposes have been introduced in the Eighty-second Congress, one of which—S. 5, Eighty-second Congress—was the subject of a report to the Committee on Interior and Insular Affairs dated March 14, 1951, which report also referred to S. 222 being considered by your committee and S. 798 being considered by the Agriculture and Forestry Committee. Also, under date January 2, 1951, this Office made a report to your committee on S. 4236, Eighty-first Congress, which bill was practically identical to S. 222.

S. 2225 proposes to create an Advisory Committee on Weather Control composed of the Secretaries of Defense, Agriculture, Commerce, and Interior or their respective designees and five members appointed by the President by and with the advice and consent of the Senate from among persons in private life of outstanding ability in the field of science, agriculture, and business, one of whom shall be elected by the members thereof as the Chairman. Said bill would confer upon the Committee authority to take such action as is set out therein to accomplish the purposes indicated in its title.

Aside from the information on this subject contained in a statement by Senator Anderson, author of S. 4236, Eighty-first Congress, and in pertinent articles by two scientists printed at pages 16475-16476 of the Congressional Record for December 8, 1950, relative thereto, this Office has no information pertaining to the matter. Accordingly, this Office makes no recommendation with respect to the proposed legislation.

Attention is invited to the first word in line 19, page 2 of the bill which apparently should be "Thorough" instead of "Through".

Sincerely yours,

FRANK L. YATES,
Assistant Comptroller General of the United States.

UNITED STATES SENATE,
June 26, 1952.

HON. ROBERT CROSSER,
Chairman, Committee on Interstate and Foreign Commerce,
House of Representatives, Washington, D. C.

MY DEAR MR. CHAIRMAN: A bill (S. 2225) that I introduced, with nine other Senators as cosponsors, has been passed by the Senate and has been referred in the House of Representatives to your committee.

This bill would create an Advisory Committee on Weather Control to study and evaluate public and private experiments in weather control (sometimes referred to as "rain making") for the purpose of "determining the extent to which the United States should experiment with, engage in, or regulate activities designed to control weather conditions."

The bill would not authorize Government experimentation nor provide for regulation of private persons carrying on experiments. It would simply set up a temporary committee, composed of five private citizens and the Secretaries of Defense, Interior, Agriculture, and Commerce to "find out who is doing what, and with what results."

There is considerable controversy about the effectiveness of "rain making." Yet public utility concerns, sugar plantations, and even an aluminum company are

COMMITTEE TO STUDY EXPERIMENTS IN WEATHER MODIFICATION 11

going ahead with large-scale operations. And farmers and ranchers in many States are spending millions of dollars to "rain makers" for weather-control projects.

These farmers and ranchers do not know whether their expenditures are worth while or not, for lack of a committee that could evaluate experiments impartially and comprehensively. An Advisory Committee on Weather Control could answer their questions and could further advise the Congress whether it should regulate the activities of rain makers or not.

Dr. Vannevar Bush told our Senate subcommittee last year that, "I have become convinced that it is possible under proper circumstances to make rain * * * we are on the threshold of an exceedingly important matter, for man has begun for the first time to affect the weather in which he lives, and no man can tell where such a move will finally end."

Other prominent scientists offered similar testimony. The potentialities of weather control for benefit—and for damage if not properly carried on—are tremendous.

Extensive hearings on this subject were held by Senate committees this year and last. The drafting of S. 2225 has occupied considerable time on the part of myself and my staff over the course of more than a year. Other interested Senators and their staffs have contributed to the bill and the suggestions of Federal agencies have been incorporated.

As Dr. Bush said, "We are on the threshold of an exceedingly important matter." I hope, therefore, that your committee can report the bill favorably to the House at an early date.

For your convenience I enclose a copy of the report on S. 2225 submitted by Senator Magnuson from the Senate Committee on Interstate and Foreign Commerce.

With all good wishes, I am
Sincerely yours,

FRANCIS CASE, *United States Senate.*



COMMITTEE TO STUDY EXPERIMENT IN WEATHER MODIFICATION II

being placed with large-scale operations. And further, and perhaps in many cases, the use of public relations of dollars to "win" respect for weather-control projects.

The various and complex problems do not show whether the experiments are worth what it costs, but as a minimum they could evaluate experiments separately and independently. The Advisory Committee on Weather Control could answer the questions and could further advise the Congress whether it should regulate the activities of this nature or not.

The Government has had no serious experiments in a year that I have become convinced that it is possible under proper circumstances to make this we are on the threshold of an essentially important matter, for they have begun for the first time to effect the control in which history and the man can tell where a move will finally end.

Other prominent scientists offered similar testimony. The potentialities of weather control for health and for damage if not properly carried on are tremendous.

Extensive hearings on the subject were held by Senate committees this year and last. The hearing of S. 2222 has covered considerable ground in the past few years and that work has contributed to the bill and the progress of Federal agencies has been accelerated.

As the bill now stands, we are on the threshold of an exceedingly important matter. I hope, therefore, that your committee can report the bill favorably to the House in an early date.

For your information, I enclose a copy of the report on S. 2222 submitted by Senate Republicans from the Senate Committee on Interstate and Foreign Commerce.

Yours sincerely,
Franklin D. Roosevelt

Thomas Gore, United States Senator

